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THE SHEEP

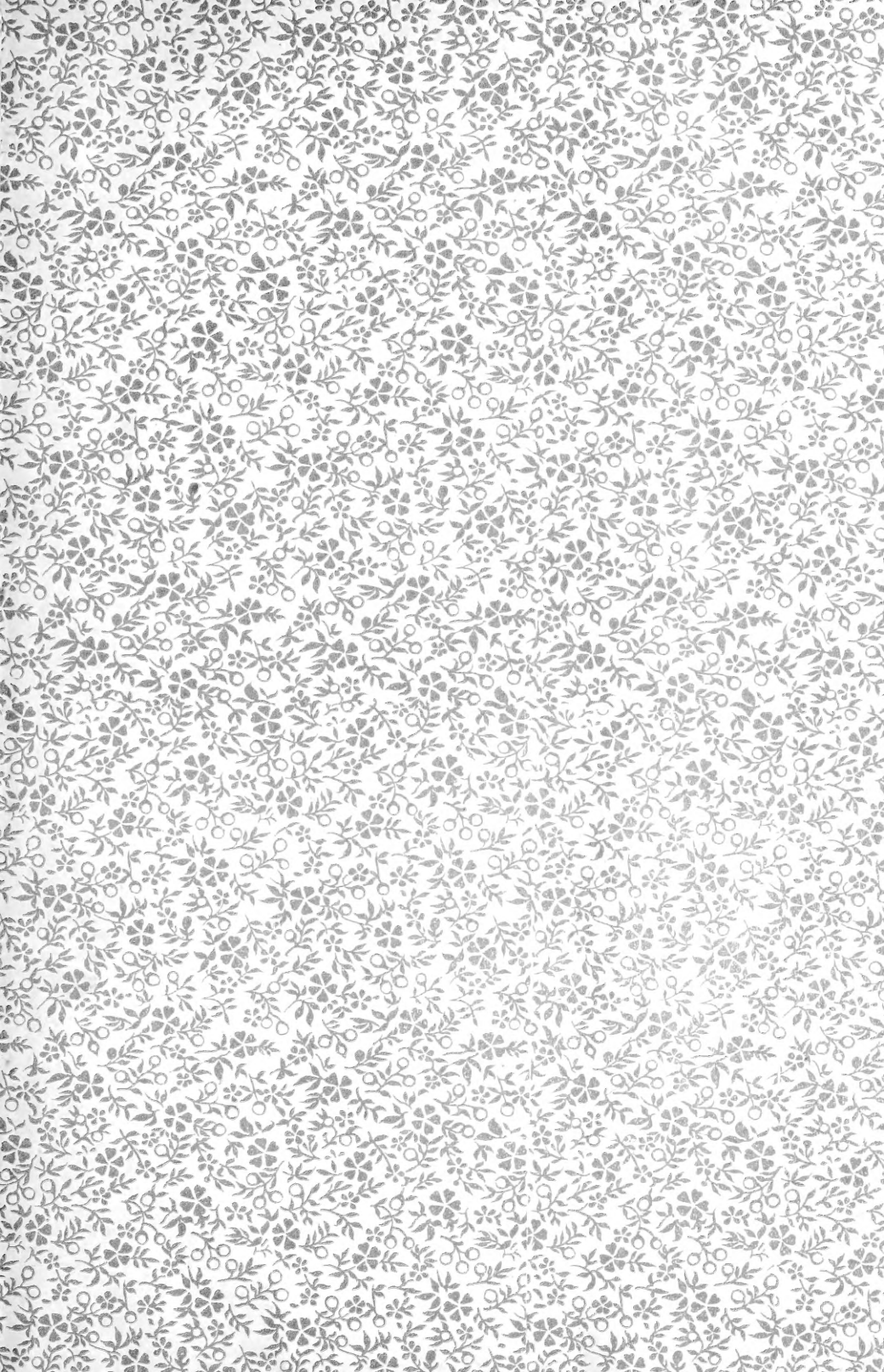
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UNITED STATES OF AMERICA.



THE SHEEP

BY

DR. WILLIAM A. RUSHWORTH.

A historical and statistical description of the Sheep and its products. The fattening of Sheep. Its diseases, with prescriptions for scientific treatment. The respective breeds of Sheep and their fine points. Government inspection, etc., with much other valuable information,

INCLUDING NUMEROUS ILLUSTRATIONS.

ALSO

AN APPENDIX CONTAINING

Sheep Breeders' and Live Stock Owners' Directory.

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CHAPTER I.

THE SHEEP.

Their origin and history. It is beyond question impossible to know, or even surmise the actual origin of the domestic sheep. It appears very doubtful whether there exists any connection between them and the Argali, or White sheep of Asia, and the Mušmon of South Europe and Africa or the Rocky Mountain sheep of North America; even should this connection be believed in, they must have been domesticated in the very remote past, their habits materially changing before there are any records in the most ancient histories we can command. We find on consulting the Bible, that sheep are spoken of among its earlier writings, and that Abel, chose sheep herding as his vocation, while Cain followed tilling the soil, and that the jealousy resulting from Abels offering of the firstlings of his flock for sacrifice, which were more favored in His sight, than those of his brother Cain, resulted in the first murder, of which there is any record. Before agriculture was practised to any great extent, when the population of the earth was comparatively small, sheep husbandry was universally followed, their natural disposition and constitution rendering them capable of adaptation to different climates and conditions, furnishing food and clothing to their possessors, affording a profitable investment, to the shepherd, the most ancient and honorable calling of man. We find sheep preceding civilization of the different parts of the world. Ancient Greece for many years was the sole possessor of this valuable animal in Europe; its introduction to Italy following the foundation of the Roman Empire; the Roman Conquests extended their use to the Conquered territories, Spain especially affording them an abundance of pasture and to Spain the honor belongs of developing and improving their condition, so that even in the time of the Romans, Spanish wool was celebrated for its quality, which preeminence it retained up to the commencement of the present century. In ancient times the sheep skins were used for clothing, but as civilization progressed, we find

CHAPTER II.

PROMINENT BREEDS OF SHEEP.

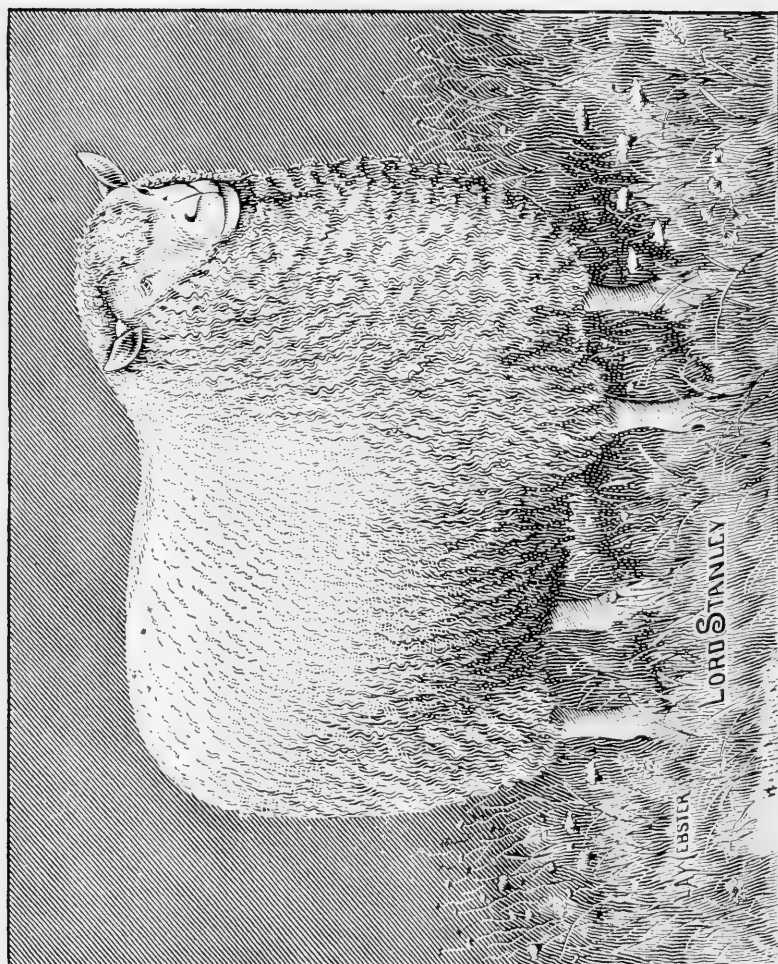
LEICESTERS AND BORDER LEICESTERS.

In describing the different breeds of sheep, we shall classify them according to their fleece, as long, middle or short wooled. The long wooled breeds are white faced, somewhat coarse in flesh, and not so active as the shorter wooled species. The long wooled breeds of sheep are English, by origin, we find belonging to this class. The Lincoln, Kent, Cotswold, Leicester, also the Devon long wooled breeds. The first place on the list undoubtedly belongs to the Leicester, it being the first breed improved by skillful selection and crossing.

The Leicester sheep, appears to have been a native of Leicestershire and adjoining Counties, for a considerable period, before it came under the genius of Bakewell, to him belongs the honor of being the pioneer in the field of improvement of all kinds of live stock. This man was an English farmer living at Dishley, Loughborough, Leicester. He recognized the fact, that the properties of parents may be transmitted to their offspring, until the type will finally become fixed. He was also endowed with the gift of discernment, in being able to tell by an animal's exterior and quality, whether or not it possessed the properties he desired to perpetuate. About 1755, Bakewell commenced on the improvement of the Leicester sheep, the result being the formation of a sheep somewhat smaller than the original type, but thicker and deeper, more symmetrical and better adapted for fattening, combined with an earlier maturity. The old Leicester breed was a coarse, large sheep, with an abundant fleece, but in the selection of smaller and more compact animals, necessary



The illustration on this page shows a pair of prize winning Lincolns from the noted flock of Mr. W. H. Scorer, Louth, Lincolnshire, England.
Imported and owned by Robert S. West, of Cleveland, Ohio.



The prize winning Lincoln Ram, LORD STANLEY, 565, bred by Henry Dudding, Riby Grove, Lincolnshire, Eng.

PROMINENT BREEDS OF SHEEP.

THE LINCOLN SHEEP.

This is another famous breed of English sheep, and may almost be said to be a manufactured breed, owing, as it does, its present perfection and size to systematic and judicious crossing of the old Lincoln sheep with other breeds, notably the improved Leicester. The Old Lincoln, was a large coarse sheep, with flat sides and hollow flanks, large legs and feet, their fleece averaged between ten and twelve pounds, almost touching the ground, and was very oily. They fattened slowly, and made much fat internally.

The New Lincoln is, as before stated, the product of Leicester crosses upon the original breed, the result being a large sheep, in fact, the largest of any in the British Isles, the flesh is firm, wool extraordinarily long; fleece very heavy, a ram's clip often weighing between 25 and 30 pounds, the wool is bright, and lustrous when shorn. While some breeders consider that the Lincolns, as a mutton breed, are inferior to the Downs, every one admits that for crossing on the common or native stock of the American Continent, they are "second to none." H. A. Daniels, Secretary of the National Lincoln Sheep Breeders Association, writes, concerning their early importations to this country, as follows: "Among the first importers of this breed to Canada, were John Geary, of London, Wm. Walker, of Ilderton, and J. T. Gibson, of Denfield, also last but not least, Wm. Oliver, of Avonbank. The first Lincolns brought to the U. S. were from the above importations and the first breeders were G. S. Allen, of Portland, Mich., and Robert Knight, of Marquette, Mich., J. J. England, of Caro, was one of the early breeders buying largely in Canada, and in '94 made a direct importation from England. The writer started a flock about this time, viz, 1880, buying the first lot of Robe. Knight, later making purchases in Canada, having brought over, of Canadian and English bred, five bunches.

"The National Association was organized in 1891 with nine in North America. It has 5,000 Lincolns registered, the organization having been in existence only eight years."

PROMINENT BREEDS OF SHEEP

THE COTSWOLD.

This is a very ancient breed, we find favorable mention is made of the Cotswolds by the early writers. Speed, writing nearly 250 years ago, says that the wool from this breed, rivalled that of Spain, it has been claimed that they even were the origin of the Spanish merino, it being a historical fact that Edward IV, permitted the exportation of a number of this breed to Spain, where they increased and spread rapidly; but as before stated in the chapter on the origin of "sheep," Spain was noted long before this, for the fineness of her wool. We find writers in the time of Queen Elizabeth, speaking about the long wooled Cotswold, which would go far to prove that the breed has always been so, and that they were never originally short wooled. The Cotswold is a large, hornless sheep, with a long and abundant fleece, the ewes are good nurses and very prolific. The Cotswold of to-day contains a considerable strain of the Leicester, which has tended to rather diminish the size and shorten the fleece, but they have retained the hardihood of the Cotswold, and are good rustlers and should cross well on the native westerns.

Legs and face white, with occasional dashes of brown or gray, showing traces of the original stock. The head is strong and massive, without horns, and having a heavy forelock of wool. The neck and fore-quarters are strong and square, the brisket fairly prominent. The hind-quarters are square, full and broad, the ribs well sprung, making a round barrel, the flanks are deep, the legs close but not long, the bone fairly heavy. Their general appearance is attractive, indicating a hardy, vigorous animal, they are shaped to fatten easily, making them a prime mutton breed. The fleece is close upon the back, and long, sometimes being nine inches in length, is well waved, and soft. The Cotswold has assisted materially in establishing several of the present cross breeds, notably the Oxforddowns and Shropshires, in England, and the Cotswold merino in Germany. Its availability of adaptation to various climates and conditions and the general useful character of its fleece in woolen manufacture, makes it one of the most valuable breeds we possess at the present time.

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PROMINENT BREEDS OF SHEEP.

THE DORSET.

The Dorset Breed. This is one of the oldest known breeds of English sheep. They have been preserved unmixed from a very remote period, and are certainly the best of all the horned breeds. This breed has some very valuable traits, the chief of which is fecundity, and the ability to breed at an early season. Dorset ewes take the ram in April, yearn in September, the lambs are then fit for the Xmas market. The ewes make excellent nurses, frequently bearing twins, and will rear a greater number of lambs than any other breed of sheep. The Dorset sheep is somewhat larger than the Southdown, longer in the legs, with a white face and legs, the horns of both sexes being of moderate size, they are superior to some breeds in that their frame is more compact and the barrel rounder, and they are by no means bad feeders. Mr. W. A. Cooper, Secretary of the Dorset Horn Breeders Association, of America, writes about the breed as follows: "Dorsets were first introduced into America in 1885, but little interest being taken in the breed until about 1890 to 1891, when a few breeders in America united and formed an Association. Since 1891, importations have been made every year —, till at present they have been introduced into 28 of the different states. Two very large importations were made in 1897. The Dorsets are popular with breeders generally, the demand exceeding the supply. The Dorset ewes are more correct in their shape than many of the improved breeds, being straight in the carcass, deep in the body, the rump large and round, the leg full and well let down toward the shank. Losses in lambing, and barrenness in ewes are rare, 150 to 160 lambs may usually be calculated for from every 100 ewes. The rams are being extensively used in the western states for crossing purposes. The demand for Dorsets is increasing every year, as their merits become known to the flock master. The Dorsets are hardy, very quiet and docile, readily adapting themselves to changes in sur-



Th pure bred Merino Ram, W. BALL, 391, bred by Wm. & E. N. Ball, Hamburg, Mich.

PROMINENT BREEDS OF SHEEP

THE MERINO.

The home of this ancient and famous breed appears to have been Spain, from whence they were imported into France, England, Germany, the U. S. of America and Australia. They are the only truly short or fine woolled breed, and as raised in Spain, were distinctly a wool sheep. We cannot do better here than print verbatim, an article written by Mr. E. N. Ball, Secretary of the Merino Breeders Association, of America, which fully covers the history of the breed, and first importations to this country:

"The ancestors of the 'American Merino,' 'Vermont Merino,' called by some at this late date, 'Spanish Merino,' etc., were imported to the U. S. from Spain. The true origin of the sheep and the country from which they emanated, is somewhat uncertain, but at an early day, fine wool sheep of excellent quality were transported from Syria to Greece, from Greece to Italy, and from Italy to Spain.

"At a very early period, Miletus, a Grecian colony in Syria, was celebrated for its woollen fabrics, and historians lead us to believe that not only the woollen goods but also the sheep that produced the wool were carried into Greece itself.

"708 B. C., Tarentum, in Italy, was settled by the Greeks, and of this prosperous settlement mention is made of the production and manufacture of its excellent wool. The Tarentine sheep were unexcelled for their fine wool, Dr. Prry notes that the Spanish Merino and the ancient Italian race seem to have certain qualities common to both. It was a marked characteristic of these sheep, that the rams had horns and the ewes had none, and this is believed to be the only breed of short woolled sheep in Europe that presents this distinguishing characteristic.

"Morrell states that about the begining of the Christian era, the sheep of Italy surpassed all others in the fineness of their fleeces, and accordingly to Pliny, the best wools are those of Apulia, which are of a very short staple. * * * * *

PROMINENT BREEDS OF SHEEP

THE SOUTHDOWN.

Also called the Sussex breed. This breed of sheep trace back with a long line of pure descent to a period prior to the reign of William the Conqueror. It is beyond a doubt one of the purest and most unmixed breeds in England, holding a position in the esteem of breeders second to none. This noted breed has reached its present state of perfection by unceasing attention on the part of breeders perpetuating the purity and perfection of the original ancestors. As far back as 1776 a Mr. Alford Young comments on their fine coat, but criticizes the thin chine, low fore end and rising back bones. The aim in improving this breed has been to amend these defects, and in accomplishing this the improvement has produced a readier disposition to fatten, with a heavier carcass.

While they still retain their character for hardiness and good rustling qualities, one of the great points of excellence in this breed, as compared with many others, is that they can stand bad weather with a correspondingly less loss of flesh than many other breeds, and being good travellers, are adapted for use on the western plains. The first importation of this breed to America are shrouded in mystery. We have, however, every reason to believe that some were brought here by the first settlers in New England states, and as early as 1648 some ewes were bought by Gov. Winthrop; also that they were known in Virginia as remote as 1688, there is no doubt as we find Mr. John Clayton, of that period, mentioning them and praising their mutton qualities. These, of course, were the old and unimproved breed, which have from time immemorial been renowned for their mutton qualities. The present improvement being due to the efforts of such men as Ellman, Drake and Jonas Webb of England, who like Bakewell, in breeding Leicesters, made certain points of excellence their aim in breeding. We find that in 1803 A. D. Rose imported a small flock of Southdowns to his estate at Fayette, N. Y.

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PROMINENT BREEDS OF SHEEP

THE SHROPSHIRE.

The Shropshire is undoubtedly a cross bred animal, and evidences a striking example of the perfection that may be obtained by judicious crossing of various breeds. The original breed was horned, and it is believed that the first attempt at improvement was to abolish these useless appendages, there is good reason to believe that this was effected by a Southdown cross. The original stock, were called Morfe Common sheep, deriving their name from the locality to which they were indigenous, if such a term could be used. They were a black faced, brown or spotted faced sheep, horned, not subject to scab, or rot, producing only about 44 to 50 pounds of mutton to a carcass, clipping nearly two pounds of fine wool to the fleece. These sheep were crossed with the Southdown, and afterwards with the Cotswold and Leicesters, the crossing and re-crossing, combined with careful selection, yielding the uniformity sought for and obtained, thus establishing the present superior breed. Since 1874, further crossing has been considered unnecessary, the results obtained prior to that time, having produced a distinct and separate breed. These sheep are hardy, thrive well on moderate keep and fatten quickly, these qualities rendering them invaluable for crossing on the common native sheep.

We find that a few Shropshire sheep were imported to this country in 1893, becoming popular wherever known. In 1875, a Mr. H. C. Chaffee, of Tippecanoe City, Ohio, imported quite a number, other importations following fast. In 1883, about 4,000 were imported, and in 1884, 5,000 more.

In the year 1884, the Shropshire Registry Association was established and at the present time (1897) there are recorded in the Registry of the Association over 100,000 individual pure bred registered Shropshires. Shropshire sheep have gained in popularity every year, their fecundity, hardiness and ability to adapt themselves to different climates and conditions being unexcelled by any other

PROMINENT BREEDS OF SHEEP

THE SUFFOLK.

This is one of the few remaining breeds of Down sheep which grazed on the chalk hills of England, from Norfolk and Suffolk, to Kent, Sussex, Surrey, Hampshire, Bucks, Berks, Wilts and Devonshire, all of which counties possess an underlying chalk formation. The original of the breed were the old Norfolks, of which mention is made by Arthur Young in 1797, who states that "their mutton for the table was superior in grain, flavor, quality and color of gravy." The first improvement of the original breed, was made by crossing with the improved Southdown rams, this, however, was supposedly prior to 1850, since which time, it is claimed they have been bred pure, without any outside admixture of blood.

The Suffolk Sheep Society, of England, lay down the following points as necessary attributes of this breed.

Head, hornless, face black and long, muzzle reasonably fine, especially in ewes (a small quantity of clear, white wool on the forehead not objected to); ears a medium length black and of fine texture; eyes bright and full; neck moderately long, and well set; shoulder broad and oblique; chest deep and wide; back and loin long, level and well covered; tail broad and well set up; ribs long and well sprung, with a full flank; legs and feet straight and black, with fine and flat bone; wooled to knees and hocks, clean below; forelegs set well apart; hind legs well filled with mutton; belly well covered with wool; fleece moderately short close fine fibre without tendency to mat or felt together, and not shading off into dark wool or hair; the skin is fine, soft and pink. The first importation of Suffolk sheep to the U. S. was in 1888, made by Mr. M. B. Streeter, of Brooklyn, N. Y., the first president of the American Suffolk Fock, Registry Association. In 1890, The Iowa Suffolk Sheep Company, of Atlantic, Iowa, imported quite a number; subsequent importations both in this country and Canada following fast till at the present writing they are becoming well known, and have established themselves as an important addition to the recognized breeds of sheep on the American continent. They are a hardy, healthy sheep, suitable for ranging on the western praries and their comparative freedom from foot rot, favors their trial on some of the marshy

CHAPTER III.

THE WOOL INDUSTRY.

The manufacture of woollen goods, dates back to Bible History. As stated in the introductory chapter of this work, the Romans, introduced the arts of weaving and spinning wool, and established a factory for the same at Winchester, England, soon after their Conquest of that country. Under the Saxon Monarchy following the Roman exodus from Britain, we find that spinning of wool became universally followed in all households, and so high was the art esteemed that princesses and noble ladies learned to spin, and from the habit being universally followed by the female members of families, the word *spinster* for unmarried ladies has been handed down to the present time. In the time of the Wars of the Crusades and even later, we find that wool represented the national wealth, frequently being used to supplement the limited coinage of those times; It — being accepted in payment of ransoms, and as collateral security for the sinews of war. Later Holland excelled all other countries in the manufacture of woollen goods, up to the time of its Conquest by Spain, then the industry suffered, from the tyrannical imposts of the governing power, which finally drove the artizans to seek other lands. England afforded many of these exiles protection, and to this source is directly traceable her superiority in the art of woollen manufactures, which to a certain extent she retains up to the present day.

Wool unlike hair grows in a spiral form, is softer and more pliable, due to a fatty secretion, issuing from the glands situated in the cutis vera or true skin, which supplies the yolk of the fleece, preventing injury to the wool fibres, from cotting or felting, from the constant friction, while upon the sheep's back.

Wool resembles hair, in that each filament is a minute tube filled with pulp, covered externally by a scaly covering formed by flat cells, the edges of which overlapping each other give the filament a serrated appearance, when examined under a high magnifying power

CHAPTER IV.

FEEDING AND FATTENING.

It is only of recent years, that the industry of feeding sheep in this country for the home and export trade, has assumed large proportions, formerly the sheep were valued more for the wool they produced than their mutton qualities, but as wool depreciated in value and the people at large became educated to the value of mutton as an article of diet chiefly through the crossing of valuable foreign mutton breeds, on the native stock, the matter of feeding sheep to meet the demand, claimed the attention of the owners, till at the present time the feeding of sheep has become of almost as much importance as the raising of wool. It is our aim here to show the various methods, in feeding, adopted in different parts of the Country, which necessarily have to vary, to suit different localities and conditions. Naturally the attention of feeders is called to consider what particular breed has the most aptitude to make flesh and fat, also what particular class will fetch the highest price on the market, he is feeding for. For instance, a feeder expecting to supply the export trade, will feed only such animals that have a large carcass, the demand abroad being for large mutton, while that which brings the top price at home is the medium size, to small of frame when prime.

Again the majority of feeders in this country are not breeders, but rely chiefly on the supply from the western states and territories, for their stock to feed. That being the case it remains to be seen, what is considered the best stuff to feed.

Of late years the common lambs from New Mexico and Southern Colorado have sprung much into favor, their points of advantage being their ability to fatten quickly, adapt themselves to different climates, and being small in carcass, rarely weighing over 95 pounds, when prime, they fetch the top market price, being eagerly bought by the butcher on account of the small amount of waste in killing, while fat, and finely flavored mutton. * * * * *

CHAPTER V.

THE ANATOMICAL STRUCTURE.

We shall not enter deeply into a consideration of the anatomy of the sheep, believing that the technical terms, while very necessary for the use of scientific men, would only tend to confuse the general reader. We will endeavor to simply explain the general structure, and internal organs and their uses, so that when describing symptoms of diseases, and after death appearances, the parts mentioned can be readily understood.

We find that the sheep resembles the ox very closely, so far as its general make up is concerned. The animal body is an aggregation of separate cells, each endowed with life, and having a certain function to perform. The general make up of an animal is called tissue. Tissue of an animal body is a collection of cells, together with their formed material, which is characterized by a special function. The formed material, is that which surrounds the cells and is not vital in its properties.

The animal body is composed of solids and fluids. The solids are the muscular, nervous, epithelial and connective tissues. They may be said to enter into the conformation of the solids; there are, however, a few special tissues which it will not be worth our while to consider in this work.

Epithelial cells are those having the special function of protecting the organs underlying them; they also have functions of secretion and enter into nerve construction; they are always found covering the surface of the body and the interior of all cavities, having access to the exterior of the system. Connective tissues is a collection of cells with their formed material controlling the shape and framework of the body. Connective tissue is divided into three classes; 1, fibrous; 2, cartilaginous; 3, bone.

Muscular tissue is composed of a collection of cells with their formed material, having the function of contraction, of muscular

CHAPTER VI.

THE DIGESTIVE SYSTEM.

We find that the sheep can, owing to the conformation of its mouth, and appendages, the lips, thrive on scanty pasture, where an ox or other animal would have to struggle for existence. The lips being covered by hair, are protected from injury from the ground, in which they come in close contact, when the animal is feeding; we find on examination that the upper lip is cleft, and that the two when together tend to form a point, enabling the animal to virtually crop the grass on a level with the surface of the ground.

The Teeth.—These are the agents by which mastication of the food is carried on; they are hard organs, bony in appearance, firmly implanted in the jaws, and projecting into the interior of the mouth.

The incisor teeth, or nippers, are in the sheep as well as in other ruminating animals, situated upon the lower jaw; the upper jaw with which they come in contact during mastication, being covered by a dense fibrous pad; we find that the incisors, unlike the back or molar teeth, are not firmly embedded in the lower jaw, but possess a certain degree of mobility (sometimes being mistaken for a diseased condition), this, however, is necessary, in order to prevent their injuring the fibrous pad of the upper jaw, against which they press. The Incisor Teeth, are eight in number, when the mouth is perfect, or full, as it is termed. We find that the lamb when first dropped has two incisor teeth, and that two more are shortly in evidence; in fourteen days time after birth, two more are erupted, making six then in all, and by three weeks after birth, two more become visible, giving the lamb eight incisor teeth. These are the temporary or milk teeth, and as the animal progresses in age, they drop out, and are replaced by the permanent teeth. For instance, when the lamb gets to be between one year and one year and a half old, the two central incisors are replaced by two larger and stronger teeth, the lamb then being called a yearling.

By two years, the tooth on either side of the centrals, undergoes

CHAPTER VII.

RUMINATION.

The rumen is the first receptacle in which the food is deposited after it has been sufficiently masticated and covered with saliva, to permit the act of deglutition; being received in the stomach mouthful by mouthful, until the viscus is comparatively full, the animal feels repletion, at which time rumination generally commences, the sheep usually assuming a recumbent position.

The food to be re-chewed is not that which was last swallowed, but that which has been in the rumen for twelve to sixteen hours previously.

The food in the rumen is constantly being changed to a different location by the action of the muscular coat of that organ, being mixed with the juices secreted by the mucous glands, of the internal surface. Entering the superior portion, it passes to the inferior, again passing to the superior, before rumination commences. For the act rumination to be performed, it is necessary that the rumen be three-fourths full to enable the food to occupy the upper part of the organ, to enter the oesophageal groove, the liquid portion then passes on to the reticulum, which is only a kind of off-shoot, or diverticulum, acting as a reservoir, to dilute the solid substances, which may pass into it.

All the food which is taken into the rumen, does not go through the process of rumination, but only the hard indigestible substances. These are supposed to be separated at the juncture of the oesophagus with the rumen, and reticulum, the hard substances being returned through the oesophagus to the mouth, by the contraction of the muscle fibres of that tube, assisted by the action of the midriff or diaphragm, which presses on the rumen, contracting its size and forcing the contents into the oesophageal groove, to the gullet; the other portion passes on to the reticulum, some even entering the third stomach or omasum, without passing through the second stomach. In the reticulum, the contents are subjected to pressure,

CHAPTER VIII.

MATING AND SELECTION.

In mating sheep, the qualities of both parents must be considered, aiming to correct the bad ones, and at the same time perpetuate those which are desirable; in the greater number of cases, the influence of the male on the offspring is found to exceed that of the female. This is seen in other animals, as well as sheep, a mule, for instance, simulates its sire, the ass, in general conformation and habits; a small mare bred to a large stallion produces an offspring half as large again as itself. A Lincoln ram on a Down ewe will produce an offspring resembling the former more than the latter. Nature's laws seeming to be that the sire shall to the greater extent fix the conformation of the offspring, the disposition being frequently governed by that of the dam, the exceptions to this being few, and only tend to prove the rule. In mating and selecting sheep, breeders seek for various points, not so much on account of their particular value, when taken singly, but because they are evidences of other valuable qualities, such as an ability to quickly take on flesh or mature early. Thus we find that in the Southdown breed, small heads and legs and small bones are sought after, as these qualities are found to be accompanied with exceptional fattening properties. Again black legs and muzzles are desirable, generally insuring a hardy constitution; these then are only the signs of good qualities, the qualities themselves consisting in the different points, tending to make the general conformation of the animal, for instance, a straight back, is a quality in itself, as also is breadth of loin, and rotundity of frame. A straight back gives a large surface for putting on flesh, and also affords more space for the abdominal organs beneath it. For mutton breeds, small bone is desirable; large bone takes a correspondingly greater supply of nutriment in the form of blood, etc., which would otherwise be employed in building up the fleshy tissues, hence it is a superfluous quantity, and for a like reason horny appendages, can be dispensed with. Rotundity of frame is an

CHAPTER XI.

DISEASES OF THE RESPIRATORY ORGANS.

These include all diseases of the lungs, bronchial tubes, larynx, nostrils, etc., and while they are less frequent and numerous, than those of the digestive system, yet they will be found occurring both in the milder forms of influenza and catarrh; and the severer forms of inflammation of the lungs, or their serous coverings, in the form of pleurisy or attacking the bronchial tubes, as in bronchitis. In fact it is asserted that pleurisy is a common affliction to sheep, numerous cases of the same having been recorded, following shearing and dipping, etc. Sheep shorn early in the season are very liable to pleurisy and fatal terminations are not uncommon.

Nasal Catarrh, commonly termed "snuffles," very frequently affects sheep which have been exposed to stormy weather, especially in the winter season. Sheep which have been shipped a long way to market, frequently arrive at their destination with a severe attack of snuffles. Nasal catarrh is inflammation of the lining of the nose, and may exist in any of the three forms of inflammation, viz: acute, sub-acute or chronic symptoms.

In the acute form, considerable fever will be present, denoted by rapid breathing, a high color to the visible mucus membranes, the head is held out straight, the appetite is affected to a certain extent. There seems to be a tendency for the inflammation to run down to the lungs. A cough is generally present, caused by the accumulation of mucus, from the inflamed surfaces. In the first stage the sheep sneezes frequently, shaking its head, evidencing pain. In the course of a few hours a mucus discharge from the nostrils commences, this being usually accompanied by the cough, the discharge soon becomes thick, but is odorless. After a few days, pus is formed and emitted with the discharge which in consequence becomes thicker, and yellow, with a heavy specific gravity, sinking in water. The disease will often, if not treated continue in this state for several weeks, till nature effects a cure, or it may be followed by an extension

CHAPTER XII.

DISEASES OF THE DIGESTIVE ORGANS.

These generally arise from errors in diet, the food being either too bulky or too concentrated, too rich or too poor. Not sufficient food, or overfeeding an excess of indigestible food stuff, or a deficiency of the same, to which may also be added irregular feeding. A concentrated food if fed in large quantities produces indigestion, the effect being felt in the stomach. Food should not enter the stomach in a wholly digestible state as that organ needs a stimulus to make it work, the stimulus resulting from the irritation, caused from the indigestible matter in the food. It will be found that of all the classes of diseases affecting sheep, those of the digestive system are the most numerous, more losses probably occurring from them, than all the other classes combined.

Aptha—Sore Mouth. This is a very troublesome, and at times even fatal affection, it is generally seen occurring among the lambs in the early spring.

This disease is generally found affecting lambs, those still sucking the ewes, being most frequently affected. While older sheep sometimes, are severely affected by it, stock over two years old, however, is rarely attacked by this disease. There seems to be some ground for the belief that feeding sheep turnips has a tendency to cause this condition, errors in diet, are also supposed causes, improper sanitary conditions, the spores of certain fungi, low vitality, and as found occurring in aged sheep, carious teeth, have also been set down as a cause of aptha. The fact, however, that even in simple aptha, the teats of the ewe become affected from the lips of lambs, would tend to prove its contagious nature. Nocard claims that it is due to a micro-organism which he has found not only in the milk, but also in the watery effusions present in the abdominal cavity after death. Apparently the lambs first become attacked, the ewes being inoculated by their young, but as to the actual cause or source, from which the lambs receive infection, but very little at present is known.

CHAPTER XIV.

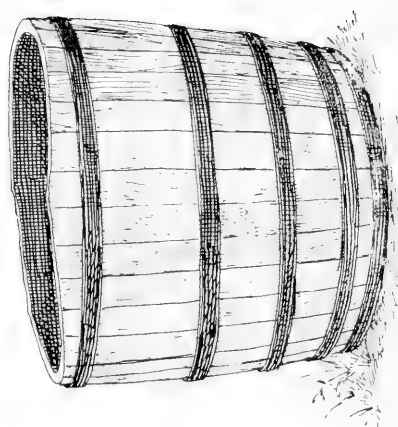
PARASITIC DISEASES; DUE TO INTERNAL PARASITES.

The Rot. This disease has been the cause of greater loss to flockowners than almost all the others combined, with the exception perhaps, of sheep scab. Records dating back hundreds of years, show that in Egypt, the disease was most virulent, appearing there annually following the inundation of the banks of the Nile. Beyond a doubt all cases of rot, have arisen from keeping sheep on a wet swampy soil, they being naturally an inhabitant of dry and lofty situations; and while they have been made to thrive on unsuitable grounds the perversion of their natural habits exposes them to attack by this most disastrous disease.

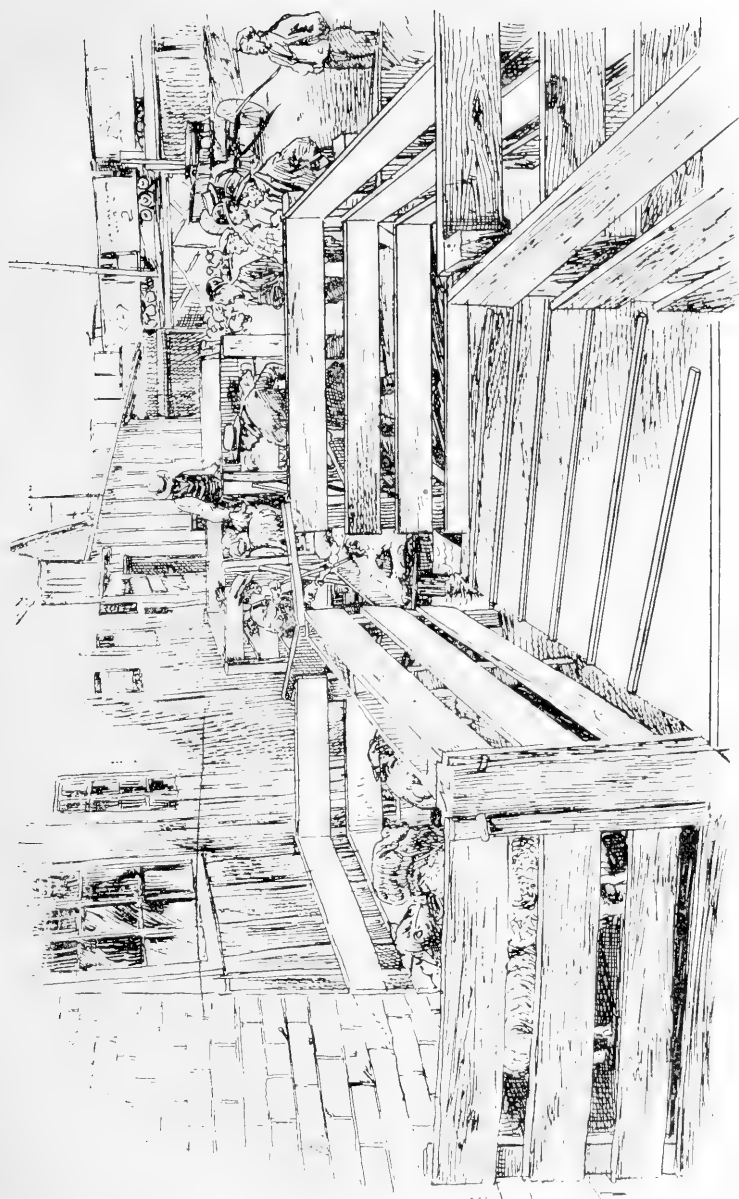
The parasite causing this disease, is known as the distoma hepaticum, or liver-fluke; and while it is very common, and has caused immense losses, on the European Continent and Great Britain, it has rarely been found affecting American sheep, although a few cases have been recorded in the East, on Long Island; also in Louisiana, Texas and California. As a matter of history, it may be stated here, that the liver-fluke in Great Britain alone, was until recently, responsible for the loss of 1,000,000 sheep and lambs annually, and that in 1830 to 1831, this number was more than doubled, many farmers losing all their flocks, one farmer in the County of Kent losing \$15,000 worth of sheep in the course of three months.

On the Continent of Europe, its ravages have been fully as great, its presence has also been felt in Australia, and to a certain extent throughout the different parts of the world, where the land is swampy and subject to floods.

M. M. Hamont, in an essay on this subject, states that "It assumes its most serious character after heavy rains, and extensive floods, and in wet Countries covered with aquatic plants. It affects animals of different ages, and in all seasons. It appears every year in Egypt after the fall of the Nile, and it follows and keeps pace with the subsidence of the waters. In the superior parts of Upper Egypt



A PRIMITIVE DIPPING VAT
Used in one of the large Eastern Stock Yards not very long ago.



Sheep Dipping Scene at East Buffalo Stock Yards.

CHAPTER XV.

PARASITIC DISEASES OF THE SKIN.

Scabies, Scab, is a disease due to the presence of an animal parasite which exists on the effusion from the irritation to the tissues caused by its presence. Of the scab insect infesting sheep, we find three kinds, namely, the *sarcoptis ovis*, which burrow into the skin; the *dermatodectes*, also called the *psoroptes communis*, the cause of common scab, which simply bite and hold on to the skin, and which is the parasite we shall mostly have to deal with in this chapter, and thirdly, the *symbiotes* or *chorioptes ovis*, the cause of foot scab.

In studying the life history of these parasites we find they are virtually alike, in that they attack the skin of the sheep, and live on the fluid caused from the irritation of their bites; the scabs form over these irritated surfaces and beneath these crusts the insects deposit their eggs. In the course of from two to three days the eggs hatch, the newly born parasite becoming adult in fifteen days. Each female parasite according to Gerlach, will lay 15 eggs, 10 of which will bring forth females, the balance males; the young parasites as soon as they hatch, spread and invade new territory, which gives the affected part the appearance of spreading, by a constant advance of its circumference. The eggs being embeded in these crusts or scabs are deposited on posts and feeding troughs, or bedding, etc., becoming fresh centers of infection, it only being necessary that they become deposited on the skin of the sheep for them to develop into live and aggressive parasites. Gerlach, the German authority, previously mentioned, computes that in three months time a single female would be responsible for the existence of 1,500,000 progeny, as shown in the following table:

	Females.	Males.
First generation after 15 days, produces.....	10	5
Second generation after 30 days, produces....	150	50
Third generation after 45 days, produces....	1,000	500

SHEEP BREEDERS'

AND

LIVE STOCK OWNERS'

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A

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Allen, J. R. & Bro.
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Arkell, Henry
Arkell, Peter
Artz, P. W.
Axe, William & Son

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Draper, Utah,
Valley Center,
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Shropshire.
Cotswold.
Shropshire.
Oxford Downs.
Oxford Downs.
Hampshire Downs.
Shropshire.

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Baldwin Sheep & Lamb Co.
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Beal, S. W.
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Bishop, Wesley & Son,
Bixby, T. A.
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Albany, Wis.
Kendallville, Ind.
Orland, Cal.
Woodstock, Ont.

Delaine, Merino.
Merino.
Merino.
Shropshire.
Southdown.
Lincolns.
Cotswold & Shropshire
Shropshire.
Shropshires.
Shropshires.
Shropshires.
Merino.
Delaine Merinos.
Shropshires.
Delaine and Merinos.
Shropshires.
Rambouillet,

C

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Cameron, C. E.
Carr, E. K.
Chadwick, W. W.
Clay, C. M.
Clearer, H. H.
Codd, H.
Cole, Oscar,
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Florida, Mo.
Westfield, Ia.
Aurora, Ills.
Cuba, N. Y.
Marshall, Mich.
Kippen, Ont.

Shropshire.
Suffolk.
Shropshire
Shropshire.
Southdown.
Lincolns.
Dorset Horn.
Shropshires.
Delaine Merino.
Shropshire.
Shropshire.

ADVERTISERS.

IN THESE PAGES will be found many valuable advertisements from reliable and responsible Companies, Firms and Individuals, R. R. Transportation Companies, Stock Brokers, Sheep Feeders' Supplies, Etc., Etc.

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DUNNING & STEPHENS, Commission, E. Buffalo, N. Y.
SADLER, HUDDLESTON & CO., Commission, E. Buffalo, N. Y.
EIRICK BROS., Commission, E. Buffalo, N. Y.
SWOPE, HUGHES, WALTZ & BENSTEAD, Commission, E. Buffalo, N. Y.
LINCOLN DISINFECTING CO., Cleveland, O.
CHAMPION & WEST, Perry, O.
LINCOLN SHEEP DIP CO., Buffalo N. Y.

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BREEDER OF

Shropshire Sheep

...AND...

Poland China Swine.



Grower of PEDIGREE FARM SEEDS...

Of All Kinds.



Correspondence Solicited and

Enquiries Promptly Answered.

BUSINESS ESTABLISHED 1878.

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C. F. WATKINS

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DODE MECKS...

LIVE STOCK
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16 LIVE STOCK EXCHANGE,
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We do a strictly commission business for the handling of Cattle, Hogs, and Sheep, and have practical, experienced salesmen in each department, and guarantee all sales at full market price.

We respectfully solicit your consignments, and are fully prepared in every way to handle your business satisfactorily. DOTY & WATKINS.

MARKET QUOTATIONS furnished promptly on application BY MAIL OR WIRE.

BILL ALL STOCK in your own name to care of DOTY & WATKINS.

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(Successors to J. F. SADLER & CO.)

COMMISSION MERCHANTS FOR THE SALE OF

Cattle, Hogs and Sheep,

New York Central Stock Yards,

Room 2, Exchange Building, East Buffalo, N.Y.



Each Department in charge of First-class Salesman.

All Correspondence promptly answered, and market reports furnished on application.

Our Motto: "Strong Market Price and Prompt Returns"

References: People's Bank of Buffalo.

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Market Reports Cheerfully Given Upon Application.

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REFERENCES:

Ellicott Sq. Bank, Buffalo, N. Y.

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ROOM 4,

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FARMERS' & DROVERS' STOCK YARDS,

CLEVELAND, OHIO.

The Lincoln Sheep Dip

REWARD \$50.00.

We will give \$50.00 (fifty dollars) reward to any person furnishing us a sheep, or sheep, affected with scab, that we cannot cure with the Lincoln Sheep Dip, and \$50.00 MORE if the preparation injures the sheep or its

WOOL.

We mean just what we say!

WRITE TO US 
FOR PARTICULARS.

Agents Wanted.

Liberal Terms.

Write to...

The Lincoln Sheep Dip Co.,

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BUFFALO, N. Y.

NON-POISONOUS.

FREE FROM ARSENIC.

—A—

Soluble Sulphur Compound
THE
LINCOLN SHEEP DIP.

—
CHEAPER THAN LIME AND SULPHUR.
—

Mixes Readily.

Does Not Require Cooking.

—
Remains in Solution, No Precipitation.
—

Easy to Handle.

Certain in its Effects.

Promotes the Growth of the Wool

—AND IS—

Absolutely Harmless to the Sheep.
—

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Fruit and Ornamental Trees,
Small Fruit Plants, Grape.:
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OUR TREES are grown on the shore of Lake Erie and have every advantage of soil, climate, and the lake winds to insure a hardy, strong and healthy growth that is not attained elsewhere.

All stock graded to the highest standard and everything carefully dug and handled.

Personal attention given to packing and shipment of orders.

If you want one tree or one thousand it will pay you to examine our stock and get our prices. Catalog mailed free.



CHAMPION & WEST,
PERRY, OHIO.



DISINFECTANTS.

THEIR PROPERTIES AND APPLICATION.

Disinfectants should never be made the means of encouraging habits of carelessness or uncleanness, and while their use is being resorted to, ordinary measures should be taken to ensure the removal of dust, dirt, and house refuse as regularly as possible, and the application of soap, water and fresh air should be in no measure relaxed. Those that think that purity and sweetness will be the result of HEAPING DISINFECTANTS ON DIRT had better leave those useful substances severely alone.

No disinfectant is perfect in its action, therefore the aim of all should be to remove dirt as completely as possible, and disinfect the traces of it that unavoidably remain, always remembering the well-known adage of a noted doctor "Sweetness is health, stench is disease."

Notwithstanding, there are times when a proper and judicious use of disinfectants will be found extremely serviceable, and to point out what is a proper and judicious use of them is the object of the following remarks.

Disinfectants can be divided into three classes.

FIRST—ANTISEPTICS, which act physically, by abstracting water from an organic compound or by causing partial or complete coagulation of the substance—a state in which it resists change indefinitely, but not otherwise destroying or decomposing the organic matter.

Instances of true Antiseptics may be found in acids, notably Carbolic, Salicylic, Boric, Acetic (including vinegar) and Tannic Acids, in several neutral substances, such as Alcohol, Glycerine, Alum, Sulphate of Iron, Sulphate of Copper, Chloride of Mercury, Chloride of Zinc, and Chloride of Sodium (common salt).

They are, generally speaking, more economical in use than the second class, as a limited quantity of the most powerful of them will effect the permanent preservation of large quantities of matter.

All the most powerful Antiseptics are more or less poisonous.

The weaker Antiseptics are harmless, and are used for preserving vegetable and animal substances for food, such as alcohol, vinegar, salt, &c. For disinfecting purposes the weaker antiseptics above named are valueless, as too much would be required to effect the purpose.

Carbolic acid is by far the most important of the antiseptics.

THE SECOND CLASS OF DISINFECTANTS are destroyers of organic matter, not preservers of it, and act chemically either as oxidizers or reducers, resolving the complex organic molecule into more simple or elementary forms; they do the same work that putrefaction does, that is, resolve septic matter into water, carbonic acid and nitrogen, but with this difference, that they do it rapidly and without passing through the intermediate stages of foul and disgusting compounds.

The best examples of oxidizers are Chlorine, Bromine, and Iodine—indirect oxidizers which first decompose the water molecule producing an acid with the hydrogen, and liberating oxygen which carries on the oxidizing process. Permanganates of Soda and Potash and Per-oxide of Hydrogen, which readily part with a portion of their oxygen, and to a certain extent the essential oils such as turpentine, eucalyptus and peppermint oils which in presence of oxygen slowly produce ozone or per-oxide of hydrogen.

The reducers are sulphurous acid, bi-sulphite of lime, sulphate of iron, &c., they abstract oxygen from organic matter and so break up the organic molecule.

All these disinfectants of the second class are themselves destroyed by the organic matter that they act upon, which distinguishes them from the true antiseptics, which do not act chemically but passively, as preservers by mere contact.

THE THIRD CLASS OF DISINFECTANTS are absorbents, substances that act by absorbing the foul gases produced by putrefaction, instead of allowing those gases to pollute the atmosphere; they are very useful in certain cases, but act only in a dry condition. The addition of water to them causes them to give

off again the vapours they have condensed within their pores. The chief absorbents are Peat, Charcoal, Lime, and Dry Earth, and to a limited extent cotton wool and all dry vegetable substances, such as sawdust, &c.

There is some difficulty in accurately classifying the different disinfectants, many of them having properties that place them in two classes, for instance, peat being an acid partakes of the nature of an antiseptic as well as an absorbent. Charcoal has a distinct oxidizing action as well as absorbent properties, and sulphate of iron in addition to its reducing action is a good absorbent of sulphuretted hydrogen, especially when mixed with lime.

CHLORINE is a powerful oxidizing gas that acts by decomposing the water molecule, uniting with the hydrogen to form hydrochloric acid and liberating oxygen; it is a pungent and suffocating gas, but less so than sulphurous acid, and unlike the latter may be used for fumigating rooms and enclosed spaces whilst they are inhabited, if the precaution be taken not to use too much. The gas is slowly liberated from Chlorinated Lime when exposed to the atmosphere, or more rapidly when Chlorinated Lime is acted on by an acid—vinegar for instance.

As an atmospheric disinfectant, Chlorinated Lime or Chlorine is very effectual, but its antiseptic properties are poor, and although it deals very effectually and rapidly with the minute quantity of septic matter in a polluted atmosphere it cannot cope with the large quantities of putrid organic matter in drains, cesspools, &c. A ton of sewage matter would probably require about an equal weight of Chlorinated Lime to completely destroy it—a quantity altogether out of the question—when the same amount would be rendered perfectly antiseptic with quite a small dose of carbolic acid properly applied.

SULPHUROUS ACID is the well-known pungent gas given off by burning sulphur. It is much used for fumigating infected rooms, clothing and bedding, and is probably the best substance that can be used for that purpose; it is a powerful reducing agent and acts by abstracting oxygen from organic compounds, but only when the vapour of water is present (in its dry state it is inactive), consequently water should be placed in or freely sprinkled on the floors of rooms that are to be fumigated to ensure the presence of a moist atmosphere.

The gas is twice as heavy as atmospheric air, so that a tray of burning sulphur should not be placed on the floor as is so frequently done, but raised on a stool or table as high as convenient, a proceeding which materially aids the diffusion of the gas.

It should not be used in conjunction with Chlorine, Chlorinated Lime, or Permanganate of Potash, as either of these being oxidizers will neutralize its effect.

The gas is sometimes produced by burning bi-sulphide of carbon in a lamp, but burning sulphur is both cheaper and more to be recommended on the score of safety.

One pound of sulphur should be used to fumigate 1,000 cubic feet of air space, all windows, chimneys, and crevices being closed to confine the gas. The room should be left closed until the next day. Bedding, clothing, &c., should be hung up to expose as much surface to the action of the gas as possible, first being sprinkled with water.

PERMANGANATES OF POTASH AND SODA are powerful oxidizers of organic matter, but like Chlorine, are themselves destroyed in the process, so that their action is limited; they are quite destitute of smell, are harmless, and do not volatilize, so that they cannot be used as atmospheric disinfectants except by the aid of a spraying apparatus. For rendering any considerable quantity of septic matter inoffensive they are out of the question, as the quantity that would be required to effect that purpose would almost equal the substance to be operated upon, when a very small quantity of a true antiseptic, such as carbolic acid, which does not expend itself in the process, would produce as good a result.

They are, however, handy for household use, as they are quite free from danger and act rapidly.

CARBOLIC ACID is an acid obtained from tar by distillation; it is undoubtedly the most powerful antiseptic we have. Unlike oxidizing and reducing agents it acts without exhausting itself. The mere contact of carbolic acid is sufficient to preserve septic organic matter; it neither destroys organic matter nor is destroyed by it, but arrests all change for an unlimited time—a property which renders it at once the most effectual and cheapest disinfectant at our command.

In its undiluted form it is highly poisonous, a property which unfortunately renders it very dangerous for household use. Its corrosive properties are so powerful that in the event of a dose of it being taken into the mouth by accident

there is absolutely no hope for the life of the unfortunate victim. Very small quantities may be successfully treated by the administration of oil or glycerine, but any considerable quantity taken into the mouth, whether swallowed or not, invariably proves fatal. During the last five years 375 deaths have been caused by carbolic acid poisoning in this country—138 by accident, 236 suicides, and one murder.

Any considerable quantity of the acid coming in contact with the skin also produces serious results, and in many such cases a fatal result has followed.

In consequence of this powerful corrosive action strong carbolic acid should only be used as a household disinfectant in the form of a powder, that is, mixed with some dry substance, preferably peat, in which form it cannot be swallowed by accident, and has no action on the skin.

It does not dissolve readily in water, that solvent taking up only about three per cent. of it. This solution is altogether too weak to be of any real service as a disinfectant. But carbolic acid can be chemically treated in such a manner as to be readily miscible with water, and combined with substances that quite remove its dangerous corrosiveness without in the least decreasing its antiseptic properties. This combination is largely sold under the name of STANDARD OIL OF TAR, the properties of which will be fully discussed further on, and in this form only should carbolic acid be used by unprofessional persons.

For fumigation carbolic acid is very useful, its fumes being much less irritating than either sulphurous acid or chlorine; in fact most persons experience quite a soothing effect on the lungs when its vapour is used. One ounce of it placed in a tin on a stove or fixed over a gas jet or small lamp and allowed to boil away is sufficient to fumigate a room containing 1,000 cubic feet of air space, and will not inconvenience the occupants of the room in the slightest degree, but of course it must be handled with care, and only used by trained persons unless some form of carbolic powder is used. The powder known as CARBOLIZED SILICATE may very conveniently be used in the same way, but taking about four times the quantity. The acid must not be allowed to burn, but simply evaporate.

SULPHATE OF IRON is much used for sewage precipitation, and is useful for flushing drains. It acts partly as a reducing agent or de-oxidizer and partly as an absorbent. It fixes sulphuretted hydrogen, and when mixed with lime, absorbs that offensive gas from the atmosphere. Although cheap, it is not much used as a household disinfectant on account of the objectionable iron stains it leaves on linen and other substances.

ESSENTIAL OILS, such as Turpentine, Pine Oil, Eucalyptus Oil, &c., are good purifiers of the atmosphere, as they have the power of converting oxygen into ozone, but as they cannot act in the absence of oxygen they are useless in drains and cesspools where a true antiseptic is required. For atmospheric disinfection they are good only if used very sparingly; in excess they produce headache and predispose to attacks of fever or influenza almost as much as an impure atmosphere, so that unless care and judgment be used in their application the cure may be as bad as the disease. The proper application of the Pine and Eucalyptus consists in planting the trees in parks and open spaces rather than in bringing their essential oils into dwellings where ventilation is necessarily limited.

PEAT, DRY EARTH AND CHARCOAL are absorbents, and to a limited degree oxidizers. Peat will absorb one hundred times its own volume of ammonia and other gases in proportion. Earth decomposes organic matter with the production of nitrates, charcoal oxidizes by means of the oxygen it condenses on its surface. Peat is probably the most active of the three, but none of them will continue to act for any length of time if submerged in water; they require air to revivify them.

For the preparation of a disinfecting powder no substance can excel peat. When mixed with carbolic acid it forms an ideal disinfectant; being absorbent, antiseptic and oxidizing it is also light and bulky, properties which enable it to be distributed more widely than most substances.

So marked are the antiseptic properties of Peat that human bodies have been dug up in peat bogs in a perfect state of preservation, after having been buried in the peat several hundred years. One hundred parts of peat render nine hundred parts of fecal matter perfectly inoffensive.

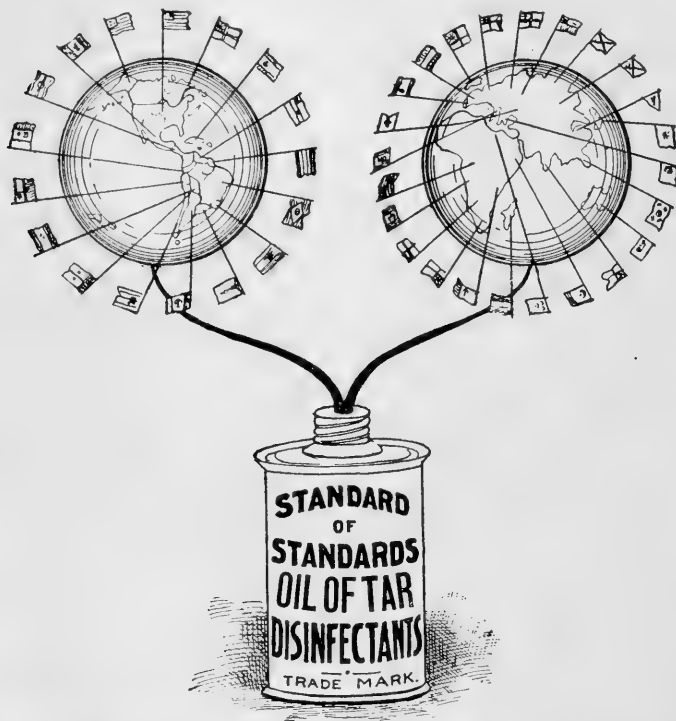
PER-CHLORIDE OF MERCURY or corrosive sublimate is very powerful as an antiseptic, but its extremely poisonous nature, together with its comparatively high price, exclude it from general use in disinfecting, and it only finds a limited application as an antiseptic dressing in surgery.

STANDARD OIL OF TAR partakes of the nature of Carbolic Acid without having its dangerous poisonous and corrosive properties; it is prepared from coal tar and retains the carbolic acid of the tar in a harmless form; it mixes with water in any proportion, forming an emulsion, which is handy and pleasant to use. It is a true antiseptic, as the following will prove. Dip a piece of raw meat once in STANDARD OIL OF TAR and hang it up exposed freely to the atmosphere; it will never show the slightest trace of decomposition, and be as free from smell as it ever was. We maintain that no other disinfectant will do this.

The method of using it is simple. Mix with water (one part in 100 of water) and use the mixture for flushing sinks, drains, sewers and all such places. In close weather floors should be sprinkled with it before sweeping, and a little of the mixture used when scrubbing; the sweetness and freshness thus imparted to close rooms is remarkable. For street watering, one pint to every hundred gallons should be used. Dogs and other animals may be freely washed in it, as its cleansing properties are very marked.

Since its introduction many imitations of it have been attempted, showing the great demand there is for such a disinfectant, but we have protected ourselves against all such rivalry and competition by placing such a low price on the article, and at the same time maintaining the quality at its highest standard, that it does not pay small firms to compete with us.

The sale of STANDARD OIL OF TAR has reached enormous proportions both here and abroad.



STANDARD OIL OF TAR, The Most Reliable
.... Disinfectant

LINCOLN DISINFECTING CO.

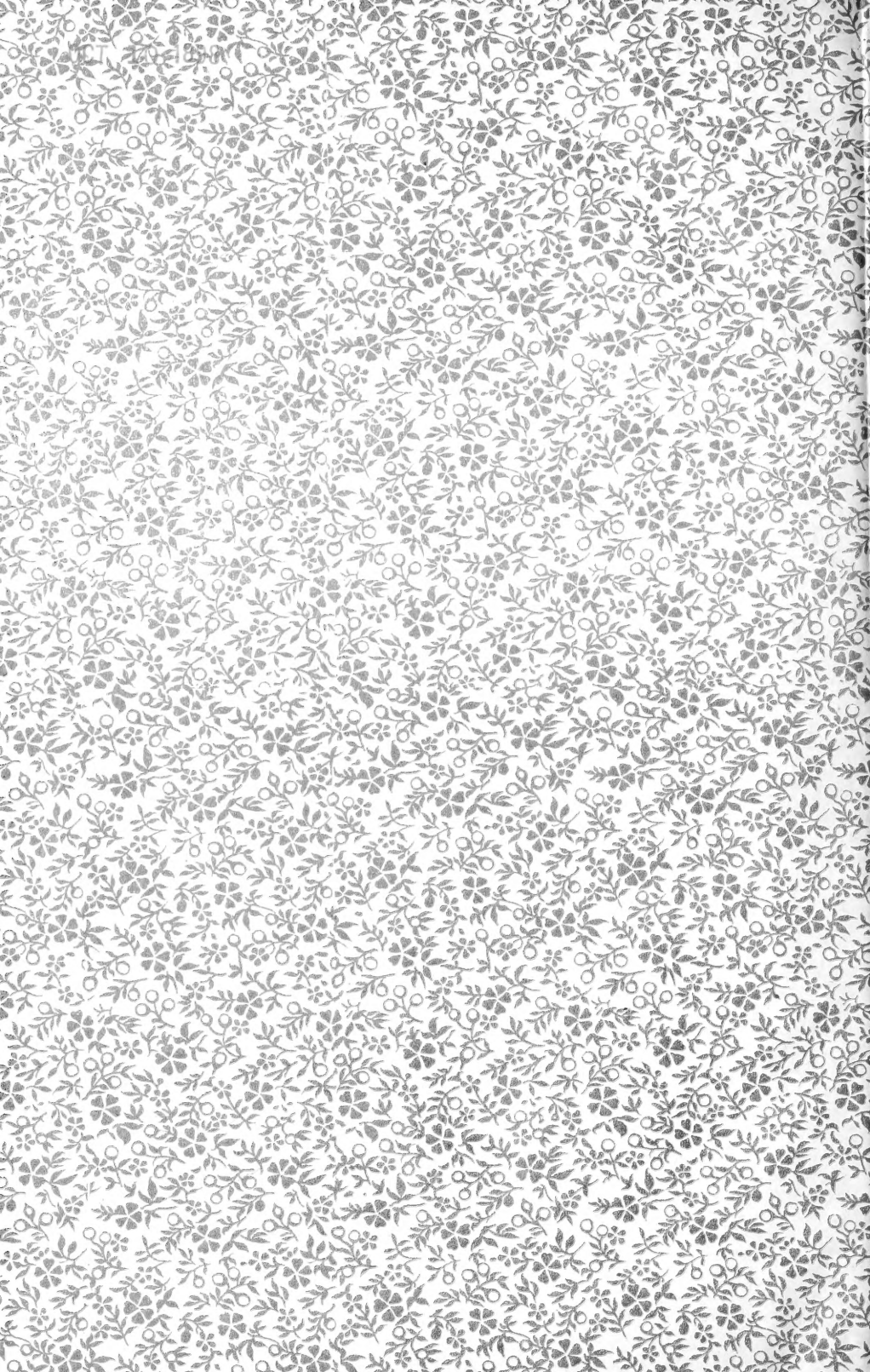
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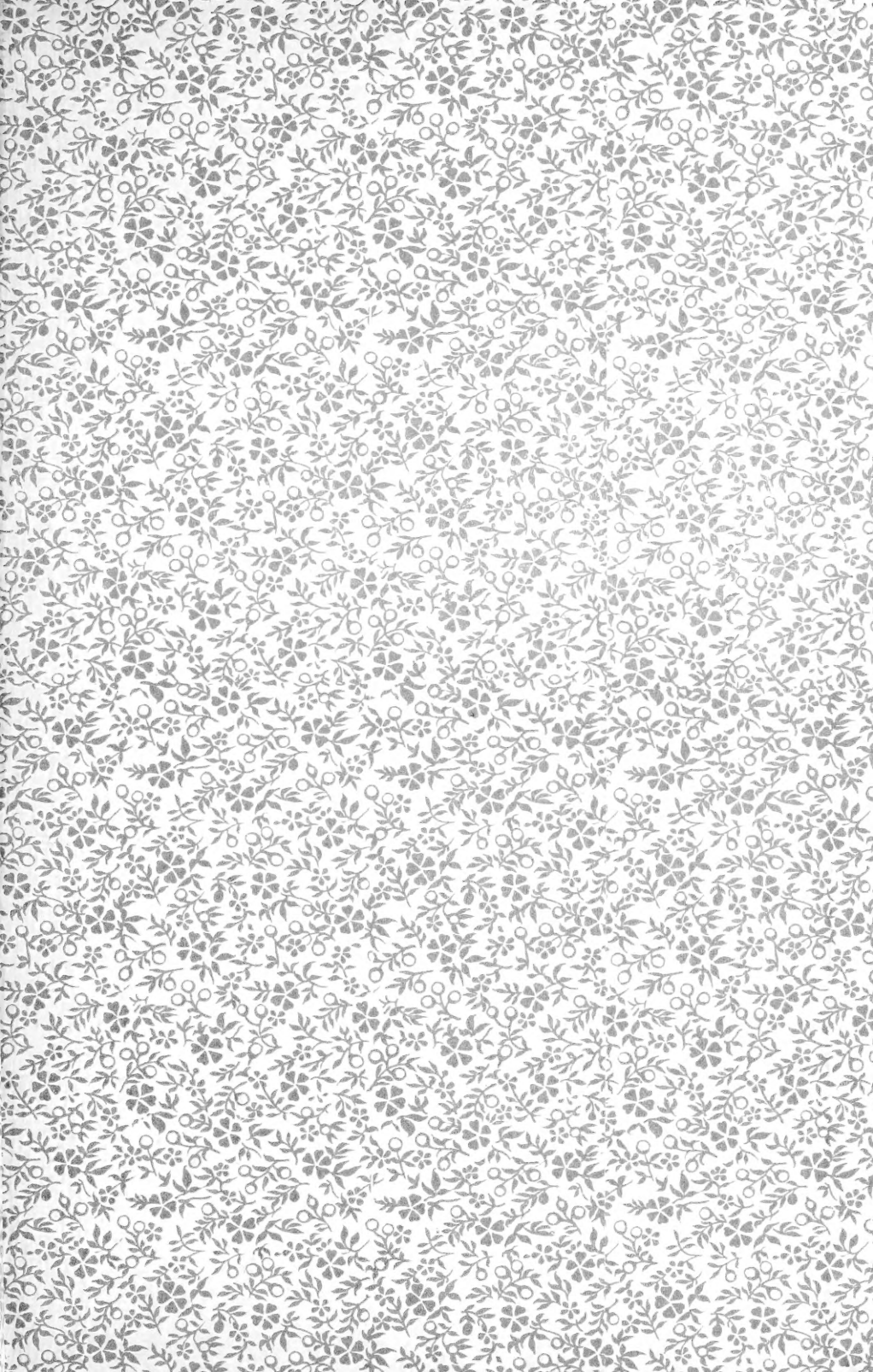
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